USDA United States Department of Agriculture

CONSERVE MISSISSIPPI PARTNERS IN CONSERVATION

Natural Resources Conservation Service

Jamie L. Whitten Plant Materials Center

1997 Annual Report of Activities

This publication is dedicated to Laura Mason,
who after 25 years of combined service, retired this year.
During her career, Laura worked with the Bureau of Indian Affairs,
U.S. Fish and Wildlife Services, Farmers Home Administration
and the Department of Defense. Laura will be
dearly missed, and we wish her the very best.

TABLE OF CONTENTS

STAFF

Full time employees	Position
Joel L. Douglas	Manager
Herby Bloodworth	Agronomist
Janet M. Grabowski	Biologist
Scott D. Edwards	Laboratory Director
Laura T. Mason	Secretary
William D. Benoist	Biological Technician
Jeff H. Tillman	Biological Technician

Part time employee	Position
James O. Pomerlee	Gardener
Jeri Shaw	Laboratory Assistant
Valisa Leigh	Laboratory Assistant
Patrick Arrington	Biological Aide
Roger Turner	Biological Aide

Plant Materials Specialists

Richard White, Colby, KS.

State Conservationists' Advisory Committee

Homer L. Wilkes, Jackson, MS
Kalvin L. Trice, Little Rock, AR
Don W. Gohmert, Alexandria, LA
James W. Ford, Nashville, TN

INTRODUCTION

The Jamie L. Whitten Plant Materials Center (PMC), located at Coffeeville, Mississippi, is operated by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), formerly Soil Conservation Service. This PMC is part of a national network of 25 plant materials centers whose mission is to develop plants and cultural techniques to address conservation problems, in the PMC's service area (Page 3).

The objective of the Plant Materials Program is to provide effective vegetative solutions to conservation problems. To meet this challenge, PMCs identify and release superior adapted plants, develop production and management techniques, provide seed and plant stock to commercial producers and promote their acceptance and use in resource conservation and environmental programs. Since the beginning of the Plant Materials Program, over 300 superior plants have been released nationwide.

The Coffeeville PMC began operation on August 8, 1960, functioning both as a PMC and a seed production unit for the Yazoo-Little Tallahatchie Flood Prevention Project. The seed production unit was discontinued in 1982, and the plant materials function was reorganized and expanded. During its tenure, the PMC has evaluated over 7,000 plant accessions for erosion control on cropland, stream channels and critical areas, as well as for forage production, wildlife food and cover, and wetland mitigation and restoration.

The PMC works cooperatively with other agencies and organizations in carrying out these functions. Cooperators include the Mississippi Agricultural and Forestry Experiment Station (MAFES), Mississippi Association of Conservation Districts, USDA Forest Service, USDA Agricultural Research Service, Mississippi Department of Transportation, Alcorn State University and Mississippi State University.

LOCATION AND FACILITIES

The Jamie L. Whitten PMC is located within the Holly Springs National Forest, approximately five miles east of U.S. Interstate Highway 55, on Mississippi Highway 330 between Coffeeville and Tillatoba (see map inside back cover). Facilities consist of an office and laboratory complex, a greenhouse complex, seed cleaning and warehouse buildings, shop and equipment storage areas, and fuel, fertilizer, and herbicide storage buildings. There are approximately 200 acres of open fields. The growing areas consist of both bottomland and upland fields, with most being of irregular size and shape, defined by streams, drainage, roads, and other topographic features. Bottomland fields primarily have Oaklimeter silt loam soils,

which are acid and often wet. With proper drainage and management these soils can become very productive. The upland soils are predominantly Loring and Grenada silt loams with fragipans. These soils are also acid and moderately to highly productive.

This variety of available growing sites permits plant evaluation under conditions representative of much of the service area. Tests may also be located at sites off the center, which further broadens the available range of testing situations. Specialized aquatic cells are located at the PMC for use in production and evaluation of aquatic plants.

CLIMATE

All weather data presented in this report is from January 1, 1997 through December 31, 1997. During this time period there was a total of 188 frost free days, which was 15 fewer than 1996. The last frost of the year was April 11, 1997, which is not unusual for this area of the state. Temperatures remained normal throughout the winter and summer months as compared to the 20 year averages.

1997 Growing Season Average Monthly Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct.	Nov.	Dec.	Ave.
High	51	56	61	73	84	86	90	88	82	77	61	53	72
Low	29	33	36	44	62	66	69	67	58	47	33	31	48

We were almost nine inches above the 20 year total rainfall average. We received uncharacteristically high rainfall amounts in June. The 12.31 inches was three times above average rainfall.

1997 Growing Season Monthly Total Rainfall

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct.	Nov.	Dec.	Total
6.55	6.62	7.82	3.15	7.15	12.31	4.11	3.15	5.61	5.75	1.41	5.14	68.77

LONG-RANGE PROGRAM

Conservation problems that exist within the PMC service area are identified in the long-range program established by the State Conservationist's Advisory Committee. Recommendations are provided by a multi-disciplinary plant materials technical committee to direct plant materials activities. Outlined below are the major conservation problems and level of priority.

CROPLAND EROSION CONTROL	PRIORITY
Winter cover compatible with no-till or conservation tillage	High
Improved plants for field borders, filter strips, waterways, and to substitute for mechanical practices	High
Alternative cropping systems for limited resource producers	High
PASTURELAND EROSION CONTROL	
Cool-season forage grasses	Medium
Warm-season forage grasses	High
Legumes compatible with grasses	Medium
CRITICAL AREA EROSION CONTROL	
Vegetation for roadways, woodlands, and drastically disturbed sites	Medium
Vegetation for shorelines of ponds, lakes, and streams	Medium
WATER QUALITY IMPROVEMENT	
Non-point source pollution and contamination of surface and groundwater	High
Animal waste management systems	Medium
WILDLIFE HABITAT IMPROVEMENT	
Plants for wildlife food and cover in all land use categories, i.e. cropland, pastureland, and woodland	High

ACTIVE PROJECTS IN 1997

Project plans are formulated based on the conservation problems outlined in the PMC long-range program (Page 4). Projects active in 1997 will be categorized according to the major conservation problem they address.

CROPLAND EROSION CONTROL

TITLE: **SWEETPOTATO PRODUCTION USING CONSERVATION TILLAGE**

INVESTIGATOR: Edwards, S.D. and Bloodworth, L.H.

OBJECTIVES: The overall objective is to determine if minimum soil disturbance will successfully establish sweetpotato plants and maintain high yields and if planter modification is necessary in a conservation tillage system.

APPROACH: Following destruction of a wheat cover crop, five management systems were evaluated. These systems were conventional tillage, paratill plowing, no-till, planter modification, and planter modification + cultivation. The transplanter was modified by adding a shank with a 6" sweep set to run in front of the coulter and sword opener. Measurements made for each plot are canopy development, grade of potato and total yield.

PROGRESS: The PMC received over 19 inches of rain during May and June. The extremely wet conditions resulted in the sweetpotatoes slips having to be replanted in late June. There was also heavy wildlife damage to the mature plants in early fall resulting in poor growth. This two factors lead to extremely low yields for all treatments resulting in no number ones and very little number two quality sweetpotatoes.

In the first two years of this study no differences were noted for plant growth, yield, or grade between management systems. Results for 1997 provided no useful data due to the nature of the growing season and wildlife damage. It should be noted that conventional tillage sweetpotatoes in 1997 across the state also experience poor performance due to the weather. A complete report will be available in the fall of 1998.

TITLE: **RESEEDING METHODS OF ARROWLEAF CLOVER IN NO-TILL SORGHUM**

INVESTIGATOR: Edwards, S.D. and Bloodworth, L.H.

OBJECTIVES: To determine the influence of soil disturbance in no-till grain sorghum system on reseeding arrowleaf clover and the response of grain sorghum to arrowleaf clover as a cover crop.

APPROACH: Eight treatments were selected for evaluation. These were: 1) fall paratill plowing, 2) fall cultivate, 3) fall disking once (1X), 4) fall hipping 1X, 5) check (shred sorghum stalks only), 6) no clover and no N, 7) no clover + 120 lb N/acre, and 8) no sorghum. Arrowleaf stand counts, dry matter yield, and N content and sorghum grain yields will be evaluated. No N was applied to grain sorghum were clover was present. Following harvest in September soil disturbance treatments were applied to all plots.

PROGRESS: Plots of 'Meechee' arrowleaf clover were established in the 1995-1996 growing season. Clover was allowed to mature seed the first year then the stand was shredded and disked to incorporate the seed. Seed yields for 1996 were 467 lb/acre. In the spring of 1997, dry matter yields of 1649 lb/acre were obtained for arrowleaf clover. The clover was chemically burned before it was able to mature seed and grain sorghum was planted in May 1997. Grain yields as influenced by clover stand and tillage treatment are listed below.

Tillage Treatment	Grain Yield lbs/acre
No Soil Disturbance	4084
Hipped Rows	3528
Paratill to 14" depth	3006
No Clover 120 N	2875
Cultivate	2483
Disk	2450
No Clover 0 N	1393
Mean	2831
LSD (0.05)	1160

Percent canopy cover measurements were made in November. All tillage treatments resulted in a percent stand of 90% or better except the plots that were hipped in the fall. The clover only had 50% canopy cover on these plots.

TITLE: **EVALUATION OF SWITCHGRASS FOR VEGETATIVE BARRIERS**

INVESTIGATOR: Douglas, J.L.

OBJECTIVE: Determine impact of 9062821 (Kemper Co., MS) and 9062839 (Chickasaw Co., MS) on soybean production and contrast these results with those obtained from a clipped and unclipped 'Alamo' switchgrass.

APPROACH: 'Alamo' switchgrass has been used extensively in vegetative barrier research as well as on farm field demonstrations in Mississippi. 'Alamo' possesses many attributes that make it useful as a plant species for vegetative barriers including stem properties, non invasive, manageable as a narrow strip and seed propagated. One disadvantage of 'Alamo' is plant height. 'Alamo' may reach heights of 8-10 ft. Shading effects and lodging on rows next to the switchgrass barrier have contributed to reduction in yields of cotton and soybean. A lower growing switchgrass with Alamo's qualities would minimize yield loss and reduce mowing maintenance.

Accessions 9062821 (Kemper Co., MS) and 9062839 (Chickasaw Co., MS) were selected among six accessions chosen from an assembly of switchgrasses because of plant height (5-6 ft.) and stem properties.

Kemper, Chickasaw and 'Alamo' were established in 40 ft. strips in March, 1997, using root stock from the original plant. Two 'Alamo' strips were established to provide a managed and unmanaged comparison. 'Alamo' will be clipped once year in mid summer (late June early July) in 1998 and 1999. Five, 40" rows of soybeans will be planted in May, 1997-1999 on both sides of the switchgrass and measured for plant height, population and yield.

PROGRESS: 1997 was the first year of the study. Although the switchgrasses were established from transplants, they did not reach their maximum height. 'Alamo' reached 6 ft. while Kemper and Chickasaw reached 3.5 to 4.0 ft., respectively. 'Alamo' began lodging on the first row of soybeans but did not effect soybean performance. There were no differences in soybean production at any distances from the switchgrass. Evaluations will continue in 1998. Establishment of seed increase fields of Kemper and Chickasaw will begin in May 1998.

PASTURELAND EROSION CONTROL

TITLE: **A COMPARISON OF SEED CLEANING TECHNIQUES TO IMPROVE SEED QUALITY OF EASTERN GAMAGRASS**

INVESTIGATOR: Douglas, J.L. Grabowski, J.M.

OBJECTIVE: Objectives of this study were to: (a) compare seed quality of fractions separated by a fractionating aspirator and gravity separator, (b) contrast these results to seed quality of a single seed fraction from an air screen cleaner, and (c) compare a fractionating aspirator to a gravity separator to determine which cleaning technique is more effective for improving seed quality of eastern gamagrass.

APPROACH: Three seed lots (A, B, C) of eastern gamagrass that had been combine harvested and cleaned with an air screen cleaner were selected for the study. A gravity separator and air fractionating aspirator were used to separate seed into different seed fractions based on size, weight, and density. A gravity separator separated the seed into two fractions while a fractionating aspirator separated seed into four fractions. Each fraction was tested for seed fill (presence of a mature seed), and stratified for 6 weeks at 5° C. Seed were planted in pots and placed in the greenhouse for 21 days. Seed cleaned with an air screen cleaner served as a control. Germination counts were made 7, 14 and 21 days.

PROGRESS: A gravity separator and air fractionating aspirator were found to be more efficient in separating filled seed from unfilled seed as determined by germination percentages for each fraction by seed lot. These findings are presented below.

Percent germination by seed lot and fraction for two cleaning techniques.

	Fractionating Aspirator			Gravity Separator
	Seed Lot			
	A	B	C	A
	----------%----------			
Fraction 1	24	43	21	48
Fraction 2	25	35	29	15
Fraction 3	18	15	15	--
Fraction 4	3	3	3	--
Control	16	22	22	22
Mean	17	24	18	28
LSD (0.05)	10	12	12	13

Results show that the best seed was obtained in fraction 1 and 2. Other fractions contained the poorest seed and account for only bulk. Gravity separator was the best seed cleaning method for eastern gamagrass. Future tests will focus on methods to improve germination. A complete report will be available in 1998.

TITLE: **EASTERN GAMAGRASS INTERCENTER STRAIN TRIAL**

INVESTIGATOR: Douglas, J.L.

OBJECTIVE: Evaluate yield and quality of 13 accessions of eastern gamagrass. Accessions exhibiting the greatest forage potential will be increased and released by the originating PMC.

APPROACH: In 1994, the PMC selected two accessions, 9062708 (Williamsburg Co., SC) and 9062680 (Montgomery Co., TN), from an assembly of 77 accessions of eastern gamagrass on the basis of plant vigor, disease and insect resistance, persistence, and apparent forage attributes. These accessions, along with 11 other accessions selected by PMCs at Knox City and Nacogdoches, TX; Booneville, AR, and Brooksville, FL, and Los Lunas, NM were included in an inter-center strain trial (ICST) to determine yield and quality potential in different geographical locations. These 13 accessions were planted at Knox City, Nacogdoches, Booneville, Coffeeville, Americus, and Brooksville.

The purpose of the ICST is to determine which accession(s) should be released as cultivars for the southeastern states. Dry matter (DM) yield for 1996 and 1997 are presented below.

Dry Matter yield of eastern gamagrass accessions by year at Coffeeville, Mississippi.

		DM Yield	
Accession	Origin/PMC	1996	1997
		---------- lb/acre----------	
434493	Knox City, TX	12 528	12 525
9043629	Nacogdoches, TX	9442	12 186
9043740	Nacogdoches, TX	8754	13 420
9043762	Nacogdoches, TX	11 311	0
9055975	Brooksville, FL	2032	0
9059213	Brooksville, FL	4971	0
9059215	Brooksville, FL	5950	0
9058465	Booneville, AR	14 535	13 394
9058495	Booneville, AR	12 877	20 019
9058569	Booneville, AR	6859	12 101
9062708	Coffeeville, MS	12 017	15 388
9062680	Coffeeville, MS	12 747	23 604
9066165	Los Lunas, NM	14 149	12 120
Mean		9859	10 366
LSD(0.05)		3724	4525

Over 50% of the Florida accessions winter killed in1995-1996 and the remaining plants were winterkilled in 1996-1997. Stands of 9043762 slowly declined in 1996 and by 1997 all plots of were dead. Accessions 9062680 and 9058495 exhibited outstanding yield potential. At the conclusion of the 1998 harvest season, selections will be made for increase and release.

TITLE: **HERBICIDES AND TIMING FOR CONTROL OF PERENNIAL WEEDS IN CRP FIELDS**

INVESTIGATOR: Douglas J.L. and Bloodworth, L.H.

OBJECTIVES: To develop chemical weed control recommendations for perennial weeds.

APPROACH: An experimental site with established stands of broomsedge and broadleaf weeds was selected to evaluate herbicides and date of application for weed control. Herbicides (common name and rate - lb ai/acre) include glyphosate (Roundup, 1, 2, or 3), atrazine (2.0) + paraquat (0.93), MSMA (3.0), imazapyr (Arsenal, 0.125) + imazethapyr (Pursuit, 0.125), and atrazine (1.0) + imazethatpyr (0.125). Application dates were 15 May, 01 July, or 15 August. Plots were rated for percent control of broomsedge two weeks after application and on 25 Sept.

PROGRESS: There was no significant difference for glyphosate at 3.0 lb ai/acre between application dates. Glyphosate at 2.0 lb ai/acre provided the same control except for the May 15 application. Again the 1.0 lb ai/acre rate of glyphosate did a poor job of controlling broomsedge on May 15, but this rate controlled 88% in July and 79% in August. MSMA provided 100% control for all dates except the May 15 application which resulted in only 44% control. The following table ranks the effectiveness of the chemical by date as observed on September 25.

Herbicide	Rate (lb ai/acre)	Applic. date	% Control
MSMA	3.0	July 1	100
MSMA	3.0	August 15	100
Glyphosate	3.0	August 15	100
Glyphosate	2.0	August 15	100
Glyphosate	3.0	May 15	96
Glyphosate	3.0	July 1	93
Glyphosate	2.0	July 1	91
Glyphosate	1.0	July 1	88
Atrazine/paraquat	2.0/0.93	August 15	83
Glyphosate	1.0	August 15	79
Glyphosate	2.0	May 15	78
Atrazine/paraquat	2.0/0.93	May 15	58
Glyphosate	1.0	May 15	53
MSMA	3.0	May 15	44

Treatments that obtained more than 85% control of the broomsedge provides an opportunity for fall no-till planting of desirable cool and warm season species. The study "Identifying Forage Species Best Suited for Converting CRP Fields" examines this possibility.

TITLE: **IDENTIFYING FORAGE SPECIES BEST SUITED FOR CONVERTING CRP FIELDS**

INVESTIGATOR: Edwards, S.D. and Bloodworth, L.H.

OBJECTIVES: To determine if no-till planting of desirable forage species will result in stands equal to or superior to stands established by conventional tillage.

APPROACH: A field with established stands of broomsedge was sprayed in early July with 2.0 lb ai/acre glyphosate. In early November, two forage systems where evaluated in no-till and conventional till systems. Forage systems are ryegrass + bahiagrass and fescue + white clover. Plant population and forage yields were determined twice yearly and all operations and inputs where recorded for economic analyses.

PROGRESS: Plots planted in the fall of 1996 were not planted at the correct depth using the no-till drill therefore stands were not sufficient to warrant dry matter yield measurements. However, broomsedge was controlled by glyphosate applied in July at 2.0 lb ai/acre.

A new location was selected in 1997 and broomsedge was effectively controlled by glyphosate at 2.0 lb ai/acre in July. New plots were established in October with correct depth band settings. All treatments resulted in excellent stands of grass except for the no-till fescue - clover combination. Residue from clipped broomsedge plots formed a mat across all no-till plots suppressing growth. In small areas in the no-till plots where there was no residue, stands were comparable to those in the conventional plots. However, over all plant populations were less. Dry matter yields will be taken twice in 1998.

TITLE: **LOW GROWING SWITCHGRASS INITIAL EVALUATION**
INVESTIGATOR: Douglas, J.L.

OBJECTIVE: To assemble, evaluate, select, and release of a low growing switchgrass for forage and vegetative barriers.

APPROACH: Ninety-two ecotypes were collected from native stands in Mississippi, Arkansas, and Alabama in 1994. Single shoots of each accession were planted in a replicated nursery in 1995.

PROGRESS: Six accessions were identified for vegetative barrier use on the basis of plant height, basal circumference, stem density and stem diameter. Accessions were: 9062836 (Madison County) 9062788 (Monroe County), 9062807 (Webster County), 9062821 (Kemper County), 9062780 (Pontotoc County) and 9062839 (Chickasaw County). Refer to Technical Note 12:8 "**A Comparison of Switchgrass Ecotypes for Stiff Grass Hedges**" and project entitled, Evaluation of switchgrass for vegetative barriers on page 11.

PROGRESS: 1997 evaluations focused on forage types. Fine stems, leafiness, and erect growth were among the evaluation factors used to identify potential forage types. Several accessions were identified in early spring but heavy rains in June caused many of them to lodge. However, there were several accessions with desirable forage qualities that were identified. These accessions were: 9062841 (Pontotoc Co., MS), 9062814 (Monroe Co., AR), 9062816 (Carroll Co., MS), 9062808 (Lonoke Co., AR), 9062809 (Lonoke Co., AR) 9062830 (Chickasaw, Co., AR), 9062838 (Madison Co., MS), 9062848 (Grenada Co., MS), 9062787 (Monroe Co., MS) and 9062840 (Chickasaw Co., MS). All 92 accessions will be evaluated again in 1998.

TITLE: **GERMINATION RESPONSE OF SWITCHGRASS TO STORAGE ENVIRONMENTS, LENGTH OF STORAGE AND PRECHILL**

INVESTIGATOR: Douglas, J. L.; Grabowski, J. M.; Lang, D. J.

OBJECTIVES: Objective is to compare germination response of three switchgrass ecotypes as influenced by, storage environment, length of storage, and prechill.

APPROACH: Seed germination studies were conducted in a growth chamber following Association of Official Seed Analysts seed testing procedures. Switchgrass seeds were obtained from a low growing type (9062746) grown in Mississippi, and two lowland types, 'Alamo' grown in Mississippi and 'Kanlow' grown in Kansas. Seed were stored in a seed cooler (7 degree C, 55% RH), at room temperature, and in a warehouse without environmental control. Prechilling consisted of placing moistened seed in a cooler (7 degree C) for 14 days. Seed germination was tested every other month over a 12 month period. Two years of seed harvest (1995 and 1996) will be tested.

PROGRESS: Testing of 1996 seed was completed in October 1997. Data analysis, that combined results from 1995 and 1996, were completed in December 1998 and used to support the following conclusions. 'Alamo' significantly increased germination percentage compared to 'Kanlow' and the low growing type at 7 and 14 days. Germination percentages for 'Kanlow' and the low growing type were similar at 7 and 14 days. Prechilling the seed significantly increased germination percentages of all switchgrasses at 7 and 14 days. However, germination response from prechilling 'Alamo' switchgrass at 14 days was minimal. Seed stored at room temperature provided higher germination percentage than the warehouse and cooler environments. There was a slight trend towards increased germination with length of storage. A complete report will be available on this study in 1998.

TITLE: **PERENNIAL COOL SEASON GRASS VARIETY TRIAL**

INVESTIGATOR: Edwards, S.D. and Douglas, J.L.

OBJECTIVES: To evaluate the adaptation and performance of cool season perennial grasses as compared to Kentucky 31 tall fescue.

APPROACH: Performance of Georgia 5 tall fescue, 564692 (Tall Oat grass), 111536 (Latar Orchardgrass), 9007238 (Orchardgrass), 421274 (Western Wheatgrass), and a selection of orchardgrass from Alcorn State University will be compared to 434045 (Kentucky 31 tall fescue). Measurements are percent stand, vigor, plant height, and dry matter yield harvested in October, April and May. Plots were established by drilling seed at recommended rates in September 1996. The selection of orchardgrass from Alcorn State University was transplanted from plants harvested on campus but they did not survive. Seeds were obtained from the original plants in 1997 then seeded into pots and grown in the greenhouse. Plants will be transplanted to field in the spring of 1998.

PROGRESS: All varieties had excellent stands by April 1997. Plots were clipped to remove top growth in April then dry matter yields were taken October 23 1997. Tall Oatgrass sustained heavy grazing from deer in the winter and spring and not survive through the summer. The following vigor and dry matter yields were taken during the 1997-98 growing season.

		Dry Matter Yield lb/a		
Variety	**Vigor**	**October 1997**	**April 1998**	**Total Yield**
Georgia 5	3	2276	1679	3955
434045 (KY 31)	3	1700	1665	3365
9007238 (Orchardgrass)	3	1002	1729	2731
111536 (Latar)	4	286	424	710
421274 (Wheatgrass)	7	284	248	532
564692 (Tall Oatgrass)	7	0	0	0

TITLE: **FORAGE PRODUCTION AND ANALYSES OF EASTERN GAMAGRASS**
INVESTIGATOR: Edwards S.D. and Bloodworth, L.H.

OBJECTIVES: To evaluate the performance of eastern gamagrass and 'Alamo' switchgrass with the introduced species 'Tifton 44' bermudagrass and 'Tifton 9' bahiagrass.

APPROACH: Plots of each species were planted in 1994. This is second year of a three year study. One half of each plot was harvested either on a 30- or a 45-day schedule. Forage quality will be determined by analyzing each species for N content, ADF and NDF.

PROGRESS: Order of total forage production for the 30 day cutting interval was 'Tifton 9' bahiagrass, 'Tifton 44' bermudagrass, eastern gamagrass and switchgrass. In the 45 day cutting interval Eastern gamagrass had the highest total yield followed by bahiagrass, bermudagrass and switchgrass. The 'Tifton 9' bahiagrass rebounded well from the freeze damage it received in 1995 and 1996. The switchgrass yields are lower than expected for both the 30 and 45 day cutting interval indicating that it may require longer cutting intervals for sustained yields. Total dry matter yields for the 1997 growing season.

	Total Dry Matter Yield lb/a	
Variety	**30 day**	**45 day**
'Tifton 44' Bermudagrass	14662	11212
'Tifton 9' Bahiagrass	13591	11221
Eastern gamagrass	10454	13721
Switchgrass	4792	6900

TITLE: **YIELD AND QUALITY OF LOW GROWING SWITCHGRASS**
INVESTIGATOR: Douglas, J.L., Lane, D.M., Edwards, S.D.

OBJECTIVES: Compare dry matter yield and quality of four southern ecotypes of low growing switchgrass to 'Blackwell' switchgrass.

APPROACH: Single, 20 ft rows of Mississippi collections (9062746, Grenada; 9062747 Calhoun; 9062759 Amite 1; 9062760 Amite 2) and Blackwell were established in replicated plots. Phosphorus and potassium were maintained at a medium level and 60 lb/acre of N were applied after each cutting. Yield was determined by harvesting at the boot stage for the first cutting and regrowth was harvested when yield and quality appeared optimum.

PROGRESS: Yield potential of Grenada and Calhoun, averaged over three years, was over 5 tons per year compared to 3 tons per year for 'Blackwell', Amite 1 and 2. Crude protein ranged from 11% for Mississippi collections to 9.5% for Blackwell. Estimated total digestible nutrients (TDN) ranged from an average of 55% for Mississippi collections to 52% for 'Blackwell'. Amite selections, which can be described as fine stemmed and very leafy, had the highest TDN over the growing season and well into early fall (51% in November compared to 35% for 'Blackwell').

Information gained from this project support that low growing switchgrass has potential for southern forage. Efforts are underway to select a forage type from an initial evaluation of switchgrass (refer to study on page 16).

CRITICAL AREA EROSION CONTROL

TITLE: **THE EFFECT OF SELECTED HERBICIDES ON THIRTEEN SPECIES OF NATIVE GRASSES AND FORBS**

INVESTIGATOR: Grabowski, J. M., Billingsley Jr., B. B.

OBJECTIVES: (1) To test the effect of preemergence herbicides on germination of certain native grasses and forbs, and; (2) To evaluate the injury caused by post-emergence applications of certain herbicides to some of these same species.

APPROACH: Preemergence herbicide tests were conducted in a greenhouse in one gallon containers filled with sandy loam soil. Five herbicides plus a control was evaluated. Plant species tested include four grasses, four legumes, and five wildflowers. Seedling counts were made two, three and seven weeks after planting and herbicide application to determine germination and survival. Post-emergence herbicide tests will be conducted using five herbicides and ten plant species (four grasses, five wildflowers, and one legume) previously established in test plots. Not all herbicides will be tested on all species. Injury to target species and weeds, plus seed germination of target species, will be compared to non-sprayed control areas.

PROGRESS:
Pots used in the preemergence herbicide test were filled, seeded, and sprayed on April 7 and 8, 1997. Herbicides tested were metribuzin (Lexone), metolachlor (Dual), DCPA, and atrazine. Seedlings were counted on April 21, 28 and May 27. Herbicide effects varied by species. In general, DCPA was the least injurious to most species, but it did prevent germination of some species, especially of the small seeded grasses. Metribuzin did not damage most of the larger-seeded grass and legume species but was highly injurious to most wildflowers. Metolachlor caused little damage to most of the legumes studied, but did damage many wildflower and some grass species. Atrazine effects were similar to those of metribuzin for most species.

Some seedling mortality was caused by the growing conditions of this test, as evidenced by losses in the control pots, so only the first two counts were analyzed. A technical note will be available on the preemergence test in 1998. Plots for the post-emergence study were seeded in the field on September 19 and 22, 1997. A single row of all grass species was transplanted into each plot during the dormant season. Plots will be sprayed and evaluated in 1998 and the study will be repeated the following year.

TITLE: **HARVEST AID CHEMICALS FOR TRAILING WILDBEAN PRODUCTION**

INVESTIGATOR: Grabowski, J. M.

OBJECTIVES: To evaluate several chemicals to aid in combine harvesting of trailing wildbean.

APPROACH: Trailing wildbean was planted in the spring in hipped rows and fertilizer lime and weed control were applied similar to a normal production field. Plots were laid out in the fall and stand evaluations were made before treatment. Chemicals used were: paraquat, ethephon, tribufos, glufosinate, spodam, paraquat+spodnam, glyphosate, sodium chlorate, UAN (32%N) + glyphosate. Chemicals were applied when seed pods were beginning to turn brown. Pods were hand picked from the plants, thrashed, and yields determined.

PROGRESS: None of the treatments provided the desired level of plant burn down before harvest. The best treatments at killing the vines were those that included glyphosate, paraquat, and glufosinate, however, the best yielding treatments were spodnam alone and the control. The experiment will be repeated in 1998.

TITLE: **BURNING AND MOWING ON NATIVE WILDFLOWERS AND GRASSES**

INVESTIGATOR: Grabowski, J. M.

OBJECTIVES: To evaluate various mowing and burning regimes on the growth of established wildflowers and native grasses.

APPROACH: Plots from a previous native grass and wildflower establishment study were utilized. There were varying numbers of nine species of native grasses and wildflowers present in each plot. The four management regimes studied are: 1) burning only in March, 2) mowing in early June and late November, 3) mowing in late July and November, and 4) mowing in early June and at six week intervals until November. Management regimes were selected for their potential to favor one or more species in the planting. Data on plant stands for native species will be collected.

PROGRESS: Mowing treatments began in the summer of 1996. Stand data was collected in 1997. No determinations have been made at this time because the study was designed to test the effects on native species over several years of management under the mowing regimes.

TITLE: **SEEDING RATES FOR NATIVE GRASSES**

INVESTIGATOR: Douglas, J.L., and Ivy, R.L.

OBJECTIVE: Objectives of this study is to compare 1x, 2x and 3x seeding rates on stand establishment of native grasses.

APPROACH: Native grasses have potential for many conservation uses in the PMC service area. Although native grasses offer many advantages for conservation plantings, including winter and summer hardiness and low fertility requirements as compared to introduced grasses, inconsistent stands, slow establishment and lack of persistence under improper management have restricted their use in the Southeast. In an attempt to address the slow establishment issue, a cooperative study was developed with Mississippi Agricultural Forestry Experiment Station at Prairie, MS to determine if increasing recommended seeding rate of native grasses will increase stand establishment.

Seeding rates of 1x, 2x and 3x of various cultivars of switchgrass, indiangrass, big bluestem, and accessions of little bluestem and eastern gamagrass were compared in 6 ft. x 15 ft. replicated plots at Prairie. All grasses were drill planted in May 1995 in a clean, firm seedbed on a pure live seed (PLS) per acre basis at a rate of 30 PLS per ft. No herbicides were used for establishment. 2-4 D was applied for broadleaf weed control. Nitrogen, as ammonium nitrate was broadcast applied at 60 lb/acre in May 1996 and 1997. Plots were burned to remove previous year's growth in late February. Seedlings per linear ft. and percent stand measurements were taken in June 1996 and 1997.

PROGRESS: No measurements were taken in 1995. Weed pressure from crabgrass and johnsongrass was a problem during the establishment year and since there are no labeled herbicides for control of these weeds in native grasses, no attempt was made to control them. Measurements taken in 1996 showed a moderate increase in percent stand of all grasses as seeding rates increased. Similar trends were seen in measurement taken in 1997. There was a notable increase after one year in percent stand of 'Alamo' and 'Kanlow' switchgrass, 'Lometa' indiangrass and 'Kaw' big bluestem when seeding rate was increased from 1x to 2x. Increasing seeding rate from 2x to 3x improved stands of 514673 indiangrass but provided minimal advantages to the others. This same trend was seen two years after establishment except for 'Lometa' which had similar seedling numbers and percent stand as the 1x rate.

There is an advantage to increasing seeding rates of some grasses from 1x to 2x, but not from 2x to 3x. The decision to increase the seeding rates to 2x should be based on the intended conservation use and seed cost. If a 1x rate is used, it may take 1 to 2 years after planting before substantial stands are achieved. Increasing the seeding rate to 2x may be advantageous for quicker initial stands of 'Kanlow' and 'Alamo' switchgrass, 'Lometa' indiangrass and 'Kaw' big bluestem. Factors such as weed pressure and rainfall will dictate how quickly stands are obtained.

Seeding rates of native grass entries at Prairie, Mississippi, 1995.

Entry	Seeding rate 1x	2x	3x
	----------PLS lb/acre----------		
'Cave - in - Rock' switchgrass	6.3	12.5	18.8
'Alamo' switchgrass	4.5	9	13.5
514763 indiangrass	11	22	33
'Lometa' indiangrass	10	20	30
PMC big bluestem	13	26	39
'Kaw' big bluestem	13	26	39
9029926 little bluestem	8.2	16.4	24.6
'Kanlow' switchgrass	3.8	7.5	11.3

Percent stand of native grasses 1 year after establishment as influenced by seeding rate, Prairie, Mississippi, 1996-1997.

Entry	Seeding Rate 1x		2x		3x	
	1996	1997	1996	1997	1996	1997
	----------% Stand----------					
'Cave - in - Rock' switchgrass	0a*	42a	0a	32a	20b	45a
'Alamo' switchgrass	47a	67a	57a	82a	55a	83a
514763 indiangrass	0a	22a	10b	42ab	33a	65a
'Lometa' indiangrass	60a	92a	80b	97a	83b	100a
PMC big bluestem	0a	30a	38b	53a	23b	43a
'Kaw' big bluestem	47b	75a	73a	93a	65a	87a
9029926 little bluestem	28a	27a	35a	48a	18a	35a
'Kanlow' switchgrass	47a	80a	65a	87a	66a	90a

* Row means for grass entries by a specific year followed by the same case letters are not significantly different at $P \leq 0.05$.

TITLE: **SEEDING MIXTURES FOR CRITICAL AREA STABILIZATION**

INVESTIGATOR: Grabowski, J. M., Snider, J. A.

OBJECTIVES: The objective of this study is to evaluate the compatibility of selected grass and legume seeding mixtures and their suitability for critical area erosion control.

APPROACH: All plots were planted with the various grass mixtures described below plus combinations of trailing wildbean and partridge pea with mulch/no mulch treatments. Fall seeded plots planted in November 1995 included annual ryegrass and bahiagrass and those seeded in September 1996 annual ryegrass and tall fescue. Spring seeding mixtures planted in May 1996 and April 1997 included browntop millet and bahiagrass. Treatments were arranged in a randomized complete block design with three replications.

PROGRESS: The annual grasses (ryegrass and browntop millet) rapidly provided a protective soil cover. In 1996, browntop millet stands were too dense and smothered most of the legume seedlings. Some late germinating wildbean and partridge pea plants eventually emerged from the residue after the millet died in late summer. This problem was not evident in the 1997 planting because few browntop millet seedlings emerged possibly due to poor weather conditions or low quality seed.

Fall seeded annual ryegrass stands were not as vigorous by the following spring and allowed considerable numbers of partridge pea and trailing wildbeans to germinate, grow, and produce a seed crop. Tall fescue did not establish in any of the test plots. Bahiagrass did not become established until the year following seeding. Mulch appears to benefit establishment of most of the species in the seeding mixture. Reestablishment of the legumes from seed was fairly poor two years after seeding due to dense, tall stands of grass and weeds. Partridge pea showed greater reseeding potential than trailing wildbean in this study.

WATER QUALITY IMPROVEMENT

TITLE: **COLLECTION AND RELEASE OF SOURCE-IDENTIFIED WETLAND SPECIES**

INVESTIGATOR: Billingsley Jr., B. B.; Grabowski, J. M.

OBJECTIVES: To collect vegetative material from populations of wetland species in Mississippi, to increase populations of these ecotypes, and release these plants for production by the nursery trade.

APPROACH: The plants were grown in wet cells at the PMC and maintained free of contamination by other ecotypes of these species. Tests were conducted in the greenhouse to determine seed propagation methods for these species. Treatments used were based on reference material when available. Seed storage conditions tested were dry storage, moist storage, and for some species, storage in water. Seed treatments for dry stored seed were cold stratification and, for some species, mechanical and/or acid scarification. The two growing environments tested were saturated soil conditions on a flood bench and moist soil conditions on a normal greenhouse bench.

PROGRESS: Plants collected and the Mississippi counties of collection were *Scirpus cyperinus (L.)* Kunth, Jones; *Scirpus tabernaemontani* K.C. Gmel., Jackson; *Thalia dealbata* Fraser ex Roscoe, Washington; *Echinodorus cordifolius (L.)* Griseb., Leflore; and *Sagittaria australis (J.G. Sm.)* Small, Lafayette. The growth rate and appearance of *Scirpus tabernaemontani* and *Sagittaria australis* were rated less than satisfactory, so these plants were not released.

Plants were provided to growers in spring 1997 and popular release brochures were printed in the fall. A second year of the seed germination study on the five species was conducted from March to June, 1997. No seed treatments provided satisfactory germination of *Echinodorus cordifolius*. All species, except *Thalia dealbata*, germinated best on the flood bench environment. All species showed improved germination rates following three months of cold stratification. In 1996, the germination of *Scirpus tabernaemontani* was improved by a 5 minute acid scarification prior to stratification, but this treatment was not beneficial in 1997. Technical reports on the seed germination study will be available in 1998.

TITLE: **EFFECTS OF POULTRY LITTER APPLICATION IN THE SHILOH CREEK WATERSHED, WAYNE COUNTY, MISSISSIPPI.**

INVESTIGATOR: Edwards, S.D.

OBJECTIVES: To monitor local poultry waste management practices in a field condition and assess their impact on soil and water quality before, during, and after poultry litter application.

APPROACH: ISCO Model 1680 water samplers were installed on a local producer's farm that had not received prior poultry litter application. Soil was sampled before and after litter application in 25, ten by ten foot plots. Water samples were taken from two sites in the concentrated flow during each rainfall event that results in surface runoff. Water samples were monitored for nitrate/nitrite nitrogen and ortho-phosphate.

PROGRESS: Rainfall patterns and events were similar to those experienced in the first two years of the study. There were 25 total rainfall events that caused runoff from the field. Concentrations of nitrate/nitrite nitrogen remained constant with very little increase from the baseline recorded in 1995 and 1996. Ortho-phosphate had a slight increase immediately following litter application but unlike 1996 the levels did not return to baseline levels. Soil test phosphorus levels for 1997 are not available at this time. The final report with all accompanying data tables will be presented later this year.

PLANT AND WATER ANALYSIS LABORATORY

Mission:

The purpose of the Plant and Water Analysis Laboratory is to provide quality plant and water testing services for the network of USDA/NRCS Plant Materials Centers across the nation.

Testing Services:

The following is a list of plant and water testing services the laboratory provides:

Water Samples	Plant Samples
nitrate/nitrite nitrogen	percent nitrogen (crude protein)
ortho-phosphorus	acid detergent fiber
total nitrogen	neutral detergent fiber
total phosphorus	percent phosphorus
alkalinity and pH	ash content
total solids	estimated % TDN, RFV, etc.
total suspended solids	

Customer Base:

Plant samples were received from:

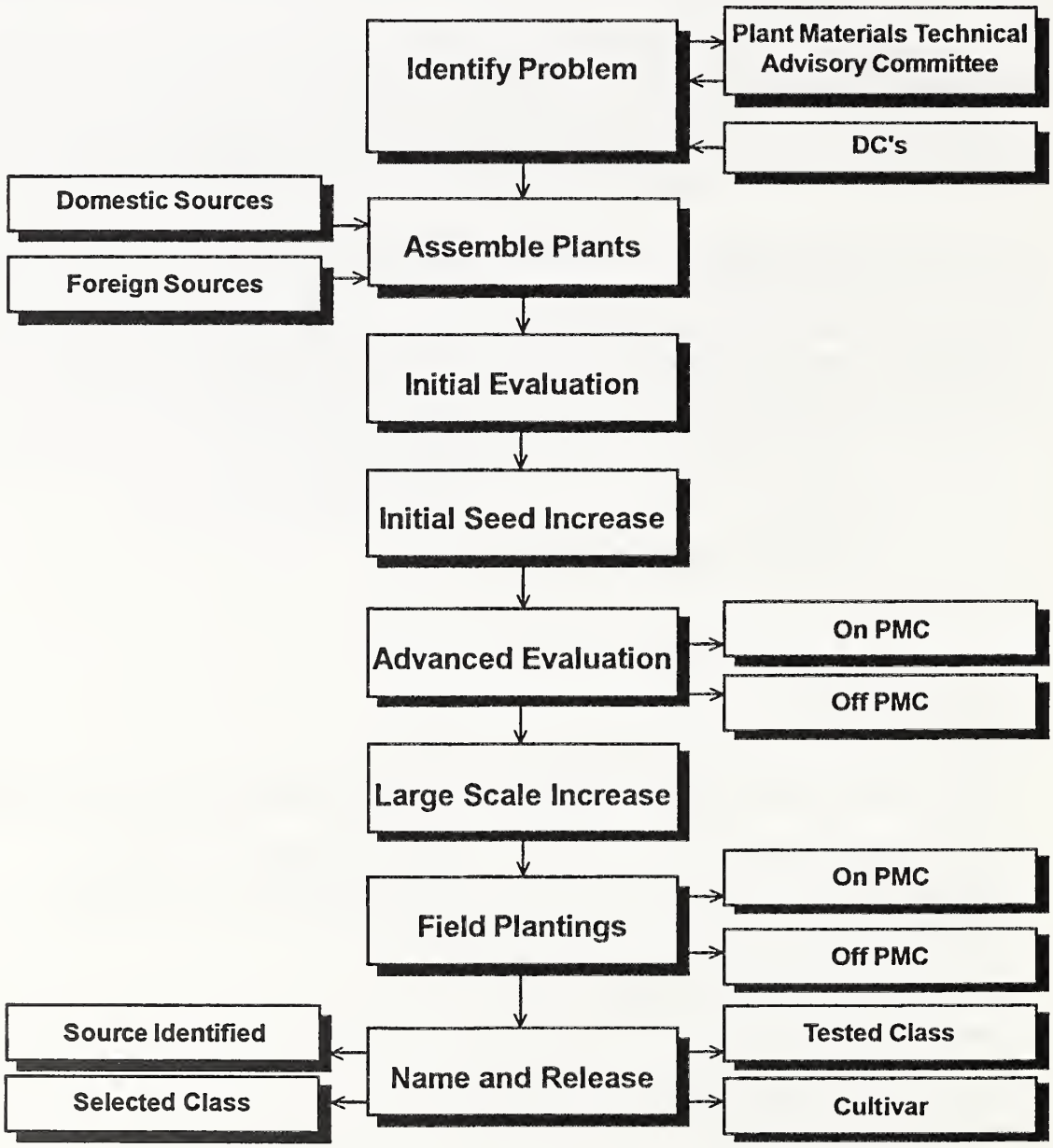
Big Flats PMC, New York
Booneville PMC, Arkansas
East Texas PMC, Texas
Elsberry PMC, Missouri
Jamie L. Whitten PMC, Mississippi
Jimmy Carter PMC, Georgia
Knox City PMC, Texas
Bismarck PMC, North Dakota
Brooksville PMC, Florida

Water samples were received from:

NRCS, Stoneville, Mississippi
NRCS Waynesboro, Mississippi

PLANT MATERIALS PROGRAM
PLANT RELEASE PROCESS

The Plant Materials Program has established a systematic process to evaluate and release plants to address the conservation problems outlined in the long-range program. The following flow chart illustrates the steps involved in this process.



PLANT RELEASES

The Plant Materials Program has established a systematic process to evaluate and release plants to address the conservation problems outlined in the long-range program. The Jamie L. Whitten Plant Materials Center, in cooperation with the Mississippi Agricultural and Forestry Experiment Station and the Mississippi State University Department of Wildlife and Fisheries have released the following cultivars, source identified and selected class plant materials which are available for commercial production:

Lark Selection Partridge Pea *Chamaecrista fasciculata* (Michx.) Greene
Accession #: 9028375

Lark selection was released in 1997 as a selected annual legume for wildlife food and critical area plantings. It has pinnately-divided leaves with 10-12 pairs of leaflets and numerous yellow flowers. The black, shiny seeds disperse from September to October, providing a good winter food source for game birds.

Hopefield Selection Trailing Wildbean *Strophostyles helvula* (L.) Ell.
Accession #: 9021719

Hopefield selection, released in 1997, can be used for wildlife habitat and critical area plantings. It is a trailing annual legume with trifoliate leaves and purplish flowers. The brown, cylindrical seed provide food for several bird species.

Indian Bayou Source Powdery Thalia *Thalia dealbata* Fraser ex Roscoe
Accession #: 9059002

Indian Bayou source was released in 1996 as a source identified plant for use as an aquatic ornamental valued for its large bluish leaves and purple flowers. It can also be used in constructed wetlands and the seed is eaten by some waterfowl. It is adapted to sites with water levels up to 1.5 feet deep. Establishment is by sections divided from the parent plant or by greenhouse grown seedlings.

Leflore Source Creeping Burhead *Echinodorus cordifolius* (L.) Griseb.
Accession #: 9062853

Leflore source was released in 1996 as a source identified wetland plant to be used for ornamental purposes. It is a creeping perennial plant with small white flowers that is adapted to sites with water about one foot deep. It is propagated by transplants.

Leaf River Source Woolgrass *Scripus cyperinus* (L.) Kunth.
Accession #: 9062741

Leaf River source was released in 1996 as a source identified wetland plant for use in constructed wetlands and for shoreline stabilization. It also has some ornamental value and provides wildlife cover and bird nesting sites. It is a clump-forming, grass-like perennial that is best adapted to shallow water depths. Transplants are the preferred establishment method.

'Quail Haven' reseeding soybean (*Glycine soja* Siebold and Zucc.)

'Quail Haven' was released in 1986 as a plant for wildlife food and cover. It also can be used for hay and as a green manure crop. It is an annual, vining, hard-seeded legume which reseeds readily. Some soil disturbance in early spring is beneficial for successful establishment.

'Meechee' arrowleaf clover (*Trifolium vesiculosum* Savi.)

'Meechee' clover was released in 1966. It can be used as a forage crop and as a cool season cover crop, although peak growth does not occur until April or May. A recommended practice is to interseed 'Meechee' with ryegrass to extend spring grazing. It is a hard-seeded, annual legume, and seed can remain viable in the soil for several years. Disking or tilling in early fall encourages germination and establishment.

'Chiwapa' Japanese millet (*Echinochloa frumentacea* Link)

'Chiwapa' was released in 1965. It is a tall, robust, annual, warm season grass which, when planted on mud flats in the summer and flooded after maturity, provides food for waterfowl. Seed resists deterioration when submerged. Chiwapa can also be used as an annual forage crop for livestock, but may be subject to lodging.

'Wilmington' bahiagrass (*Paspalum notatum* Fluegge)

'Wilmington' was released in 1971. It is a warm season, perennial grass used for pasture and hay production. It is more cold tolerant in North Mississippi than 'Pensacola' bahiagrass, but low seed production limits its availability. Wilmington is readily identified by its dark green foliage.

'Halifax' maidencane (*Panicum hemitomon* J. A. Schultes).

'Halifax' was released in 1974 for stabilization of stream channels and shorelines. It is a warm season, perennial grass adapted to wet areas. It does not produce viable seed. Propagation is by vegetative means using rhizomes.

PLANT MATERIALS INCREASE FOR 1997

The plant materials process requires populations to be increased during one or more stages. Often, only a small number of seed or plants of the originally collected material is available, and several years of propagation may be required to produce sufficient materials for testing, release, and eventual use. Materials in increase are considered to be in either an initial, special project, or field production increase. Other materials increased during 1997 include:

Initial Increase:

Genus/species	Common Name	Accession
Arundinaria gigantea	Dwarf switchcane	9035218
" "	" "	9035247
Arundo donax	Giant reed	9035156
Chamaecrista fasciculata	Lark Selection Partridge pea	9028375
Echinodorus cordifolius	Leflore Source Creeping burhead	9062853
Medicago arabica	Spotted bur clover	9059036
Miscanthus sinensis	Chinese silvergrass	434142
Panicum Virgatum	Switchgrass	9062836
" "	" "	9062788
" "	" "	9062807
" "	" "	9062821
" "	" "	9062780
" "	" "	9062839
Phragmites australis	Common reed	434213
S. humilis	Prairie willow	9004886
S. eriocephala (rigida)	Erect willow	9004885
Scirpus cyperinus	Leaf River Source Woolgrass	9062741
S. tabernaemontani	Soft stem bulrush	9062740
Strophostyles helvula	Hopefield Selection Trailing wildbean	9062718
" "	"	9021719
Thalia dealbata	Indian Bayou Source Powdery thalia	9059002
Tripsacum dactyloides	Eastern gamagrass	9062680
" "	" "	9062708
" "	" "	9058543

Field increase:

Genus/species	Common Name	Cultivar
Panicum hemitomon	Maidencane	'Halifax'

PLANT MATERIALS SHIPPED IN 1997

During 1997, 11,705 rhizomes and 600 pounds of seed were shipped from the PMC to field locations for conservation trials and field plantings.

The following species were shipped:

Halifax maidencane	11,000 rhizomes
Gilg willow	100 cuttings
Erect willow	100 cuttings
Burhead	175 plants
Thalia	175 plants
Woolgrass	155 plants
Meadow Beautyberry	25 lb. seed
Quail Haven reseeding soybean	4 lb. seed
Teosinte mixed with Quail Haven	50 lb. seed
Eastern gamagrass	50 lb. seed
Bur marigold	1 lb. seed
Partridge pea	225 lb. seed
Calliopsis	89 lb. seed
Clasping coneflower	53 lb. seed
Black-eyed Susan	44 lb. seed
Lyre-leaf sage	55 lb. seed
Little bluestem	3.5 lb. seed

Technical reports available for distribution are listed below.

1996 Reports

Establishment of Native Plants on Disturbed Sites -- J.A. Snider
Bio-technical Erosion Control -- J.A. Snider
How to Grow No-till Cotton -- L.H. Bloodworth
Growing Butterfly Milkweed -- J.M. Grabowski
Evaluation of Establishment Methods for Certain Herbaceous Native Plant Species B.B. Billingsley and J.M. Grabowski
Herbicides and Timing for Control of Perennial Weeds in Conservation Reserve Fields. L.H. Bloodworth and D.M. Lane
An Alternative Erosion Control Practice for Cropland -- J.L. Douglas and Carl E. Mason
A Comparison of Switchgrass Ecotypes for Stiff Grass Hedges -- J.L. Douglas, J.A. Snider and D.M. Lane
Reseeding Arrowleaf Clover as a Nitrogen Source for No-till Cotton -- L.H. Bloodworth
No-till Grain Sorghum Response to Arrowleaf Clover and Nitrogen -- L.H. Bloodworth
Cover Crops and C-factors for Conservation Tilled Sweetpotato -- L.H. Bloodworth, L. Golden, and K. Ainsworth.
Cover Crop C-values for No-till Peanut -- L.H. Bloodworth, L. Golden, and K. Ainsworth.
Cover Crop C-factors for Cotton Tillage Systems -- L.H. Bloodworth
Evaluation of Plant Species for Vegetative Hedges -- D.M. Lane and J.L. Douglas

1995 Reports

Black-eyed Susan - A Useful Wildflower--B. B. Billingsley
Comparison of Americus and Commercial Source of Hairy Vetch as a Cover Crop--J.L. Douglas
Planting and Maintenance of Wildflowers and Native Grasses in the Midsouth--J.M. Grabowski
Seed Germination of Alamo Switchgrass as Influenced by Age of Seed and Prechill--J.L. Douglas and J.M. Grabowski
Yield and Quality of Upland Switchgrass--J.L. Douglas, D.M. Lane, and S.D. Edwards
Initial Evaluation of Eastern Gamagrass Ecotypes for the Mid-South--J.A. Snider
Using Hairy Vetch as a Nitrogen Source for Cotton--L.H. Bloodworth
Reduced Cover Crop Seeding Rates for No-till Cotton--L.H. Bloodworth
Renovation of Conservation Reserve Program Fields--L.H. Bloodworth and D.M. Lane
Establishment Methods of Sweetpotato in a Conservation Tillage System--L. Bloodworth and D.M. Lane
Sweetpotato and Peanut Response to Cover Crops and Conservation Tillage--L.H. Bloodworth, D.M.Lane, and Joe Johnson

1994 Reports

Low maintenance trials of cool-season species on surface mines--J.L. Douglas and J. A. Wolfe
Recommended plant sample preparation for PMC's--S.D. Edwards
Shoreline erosion control with maidencane--J.L. Douglas
Vegetative barriers for the Midsouth--D.M. Lane
Vetiver grass variety trials, 1989-1990--J.A. Snider
Peanut response to cover crops and tillage--L.H. Bloodworth and D.M. Lane
Vegetative barriers for Mississippi's cropland--J.L. Douglas
Field plantings of marshhay cordgrass in the Delta states--J.L. Douglas and J. A. Wolfe
Sweetpotato response to cover crops and conservation tillage--L.H. Bloodworth and D.M. Lane
Field plantings of switchgrass cultivars in the Delta states--J.L. Douglas and J. A. Wolfe
Cover crop potential of white clover: Morphological characteristics and persistence of thirty-sixvarieties--Joe Snider, L.H. Bloodworth, and Vance Watson
Establishment methods of cover crops in no-till cotton--L.H. Bloodworth, J. A. Wolfe, and Joe Johnson

1993 Reports

Peanut Response to Cover Crops and Tillage--L.H. Bloodworth
Sweetpotato Response to Tillage and Cover Crop--L.H. Bloodworth
Evaluation of White Clover Varieties for Use in No-Tillage Systems and the Conservation Reserve Program--Joe Snider and L.H. Bloodworth
Vegetative Barriers for the Mid-South--D.M. Lane
Response of Tall Fescue and Bermudagrass to Fly Ash Treated Soil--Joe Snider
Cover Crop Response to Soil Applied Herbicides Used in Cotton--L.H. Bloodworth and J.A. R. Johnson

1992 Reports

Selection of a Cold Hardy Bahiagrass Cultivar--L.H. Bloodworth, J.A. Wolfe, and J.A. Snider
Low Maintenance Trials of Warm-Season Species on Surface Mines--J.A. Wolfe
Seed Production and Variation Among Selected Trailing Wildbean Accessions--J.A. Wolfe
Field Plantings of Afghan Reedgrass--J.A. Wolfe
Field Plantings of Four Willow Selections--J.A. Wolfe
Bluegrass Variety Trials--J.A. Snider and J.A. Wolfe

1991 Reports

Response of Selected Accessions to Common Herbicides--L.H. Bloodworth
Seed Production and Variation Among Selected Partridgepea Accessions--J.A. Wolfe

1990 Reports

Initial Evaluation of Beaked Panicum--J.A. Wolfe and J.A. Snider
Initial Evaluation of Purpletop--J.A. Wolfe and J.A. Snider
No-Till Cotton Trails: I. Establishment Methods of Cover Crops in No-Till Cotton--L.H. Bloodworth
No-Till Cotton Trials: II. Effects of Cotton Herbicides on Cover Crops--L.H. Bloodworth
No-Till Cotton Trials: III. Effects of Cover Crops on Tillage and Cotton--L.H. Bloodworth
Advanced Evaluation of Giant Reed: Comparison of a Coffeeville PMC Selection with Five Accessions from Brooksville--J.A. Wolfe and B.B. Billingsley
Initial Evaluation of Rescuegrass for Winter Cover--J.A. Wolfe and J.A. Snider

1989 and 1988 Reports

Initial Evaluation of Trailing Wildbean--J.A. Wolfe, J.A. Snider, and B.B. Billingsley
Arkansas Evaluation Planting IX: Performance in Adaptation Studies--J.A. Wolfe
Investigations into the Est. of Vegetative Flumes--B.B. Billingsley, J.A. Snider, and J.A. Wolfe
Evaluation of Potential Cover Crop Species for use in Chemically Treated Cotton Fields--J.A. Snider, J.A. Wolfe, and B.B. Billingsley
No-Till Trials for Common Row Crops I. Milo Production Following Six Cover Crop Treatments--J.A. Wolfe, J.A. Snider, and B.B. Billingsley
No-Till Trials for Common Row Crops II. Establishment of Cotton and Soybean into Winter Cover Without Plowing--B.B. Billingsley, J.A. Snider, J.A. Wolfe

1987 Reports

Initial Evaluation of Partridgepeas--J.A. Wolfe and J.A. Snider
Initial Evaluation of Illinois Bundleflower--J.A. Wolfe and J.A. Snider
Advanced Evaluations of Giant Reed: I. --J.A. Wolfe, J.A. Snider, and B.B. Billingsley.
Advanced Evaluation of Giant Reed: II. --J.A. Wolfe, J.A. Snider, and B.B. Billingsley
Advanced Evaluation of Giant Reed: III. Survival and Spread Study--J.A. Snider and J.A. Wolfe
AR Blackland Prairie Field Eval. Planting III: Performance of Introduced Bluestems--J.A. Wolfe
AR Blackland Prairie Field Evaluation Planting IV: Performance of native Bluestems--J.A. Wolfe
AR Blackland Prairie Field Evaluation Planting V: Performance of Switchgrasses--J.A. Wolfe
AR Blackland Prairie Field Evaluation Planting VI: Performance of Indiangrasses--J.A. Wolfe
AR Blackland Prairie Field Evaluation Planting VII: Performance of Shortgrasses--J.A. Wolfe
AR Blackland Prairie Field Eval. Planting VIII: Performance of 5 Lespedeza Var.--J.A. Wolfe

1986 Reports

Arkansas Blackland Prairie Field Evaluation Planting I: Plant Performance in Management Trials--J.A. Wolfe

Arkansas Blackland Prairie Field Evaluation Planting II: Changes in Plant Performance over Three Years--J.A. Wolfe

Rooting Trials for Promising Willows--J.A. Wolfe, J.A. Snider, and B.B. Billingsley

Advanced Evaluation of Afghan Reedgrass: I. Results of Planting Trials--J.A. Wolfe and J.A. Snider

Advanced Evaluation of Afghan Reedgrass: II. Effects of Clipping on Production--J.A. Wolfe, B.B. Billingsley, and J.A. Snider

1985 Reports

Initial Evaluation of Yellow Bluestem--J.A. Wolfe, B.B. Billingsley, and J.A. Snider

Initial Evaluation of Limpograss--J.A. Wolfe, B.B. Billingsley, and J.A. Snider

Initial Evaluation of Brunswickgrass--J.A. Wolfe, B.B. Billingsley, and J.A. Snider

Initial Evaluation of Indiangrass--J.A. Wolfe, B.B. Billingsley, and J.A. Snider

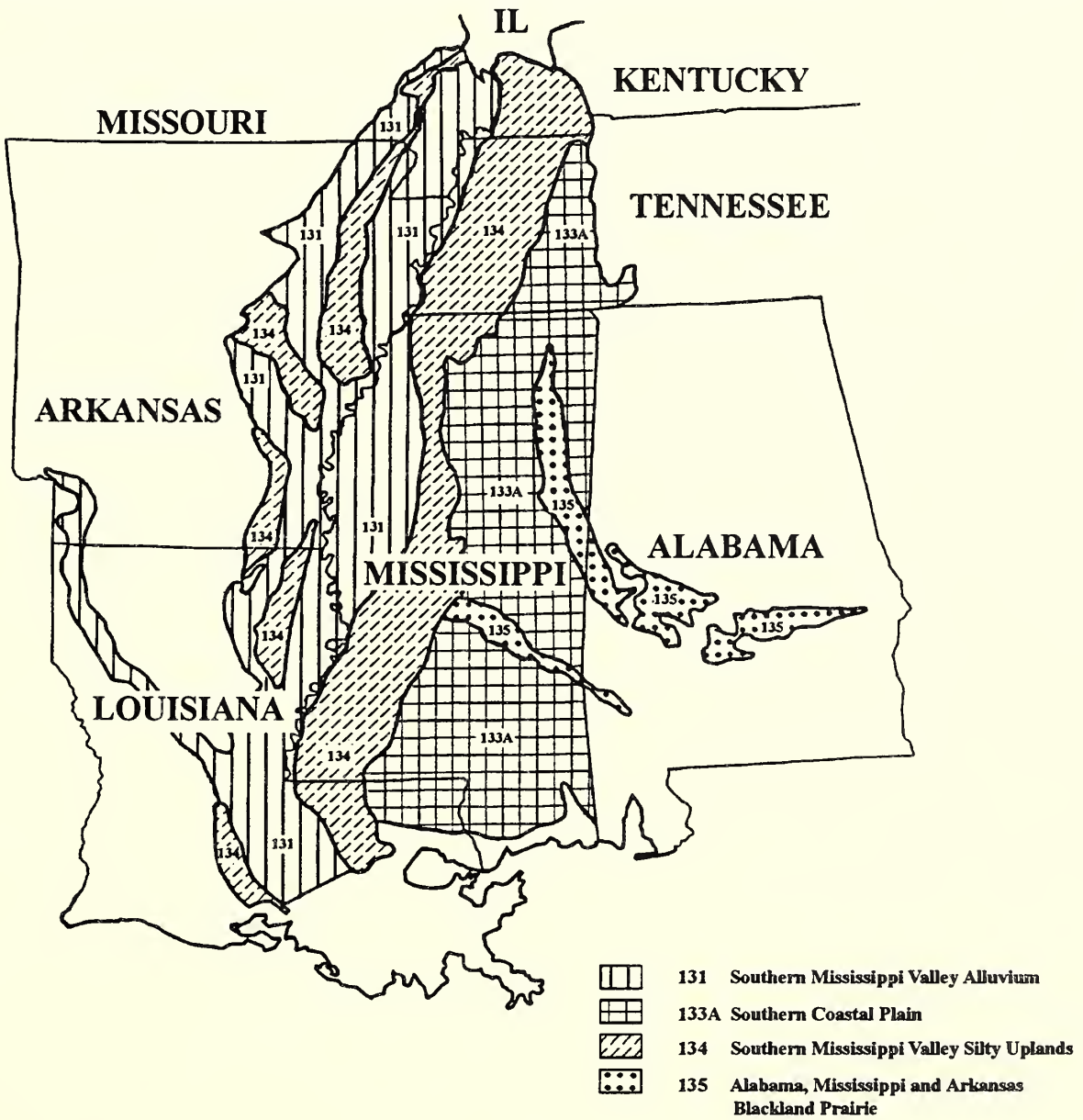
Copies of these reports may be requested from:

Jamie L Whitten PMC
Route 3 Box 215A
Coffeeville, MS 38922
601-675-2588

SERVICE AREA

The primary service area of the Jamie L. Whitten PMC includes most of Mississippi, excluding the coastal areas that are serviced by the Golden Meadow PMC in Louisiana. It also includes parts of Arkansas, Louisiana, Missouri, Alabama, Kentucky, and Tennessee. This territory is defined by Major Land Resource Areas (MLRAs), which possess similar soil types, climate, topography, and land use patterns. The MLRAs involved are: MLRA 131 (Southern Mississippi Valley Alluvium); MLRA 133A (Southern Coastal Plain); MLRA 134 (Southern Mississippi Valley Silty Uplands); and MLRA 135 (Alabama, Mississippi, and Arkansas Blackland Prairie).

The map below identifies the service area and MLRAs served by this PMC.



Jamie L. Whitten PMC is located half way between Memphis, TN and Jackson, MS off Interstate 55. To visit the Center, take the Tillatoba exit off I-55 and travel 4.5 miles east on Mississippi Hwy 330.